

MUSEUM STORIES FOR CHILDREN

Presented by

*The James Nelson and Anna Louise Raymond Foundation
for Public School and Children's Lectures*



Series XIX, Number 1
October 1, 1932

FIELD MUSEUM OF NATURAL HISTORY

Roosevelt Road and Lake Michigan

CHICAGO

THE LAND OF THE RISING SUN

To the east of China lies a group of islands to which the Chinese long ago gave the name "Ji-pen" on which our word Japan is based. This word means "sun origin" or "the starting point of the sun." Hence another name for Japan is "The Land of the Rising Sun."

Japan was a land of mystery for a long time. No foreigners were allowed to land on its shores, and no natives could leave under penalty of death. Until Commodore Perry, in 1853, convinced the ruler that trade with the west would be good for that country, the people lived bound up in old customs and beliefs. Today, Japan is one of the great nations of the world.

To us, the land is one of many interests. The many high mountains, the leaping waterfalls and lakes are beautiful pictures. The population is so large that every bit of land that can be cultivated must be called into use to help raise rice, wheat, barley and other foods for the people. On tops of mountains are temples to which people make long pilgrimages to lay their offerings at the feet of massive statues of gods. The most sacred mountain is Fujiyama.

In olden times, all buildings were made of bamboo or wood, were square in shape and covered with thatching. Later, the posts were placed on stones to prevent decay, and shingles or tiled roofs added. Today, it is necessary to go into the small villages to find the quaint, old types of Japanese houses. In the cities, houses similar to those of our own land are taking the places of the bamboo structures with sliding walls of paper.

Like many other places in the Orient, Japanese houses have almost no furniture. They have no need for chairs as the floors are covered with thick mats on which they squat; nor for bedsteads, as they sleep on wadded quilts spread on the floor. For pillows they use hollow boxes having space for mirrors, combs, lantern and matches inside. On these are long, round cushions stuffed with buckwheat hulls. The pillow-case consists of several sheets of soft paper, of many folds. No dining tables are used as each person is served separately on a little lacquer tray or low stand. No other people, except the Chinese, can make such beautiful lacquer-ware.

No matter how poor the family may be there is always a garden back of the house. It may have but a few plants and a small pool, but it will be well cared for and artistically planned.

The Japanese are especially fond of the blossoms of the cherry, plum, wistaria and chrysanthemum, and gnarled, twisted, old pine trees. The chrysanthemum is the national flower and is used wherever possible in paintings and carvings, and is raised in gardens, often in great numbers of shapes and colors.

Japanese children are known the world over for their neat appearance and nice manners. With their dainty, flower-and-bird-design kimonos, and their little wooden clogs for the street and rice-straw sandals for the houses, and their heads shaved except for a tuft just above the nape of the neck, they look more like dolls than real people.

The kimono is the national costume. It varies greatly in material, color and decoration according to the social position and age of the wearer. The young may have all the brightness of the rainbow while the aged wear only plain garments. The broad sash, called obi in Japanese, is the most treasured object of the woman's costume. The hair is dressed in most elaborate fashions and fastened down with combs, pins and flowers. Kimonos are handed down from mother to daughter. In the large cities many girls and women wear American clothes, but they are not as becoming or graceful as the native dress.

Japan has many festival days. The New Year Festival is the most important. This is the time for cleaning out the house, paying debts and making gifts. For the children there are two days which are entirely their own.

The third day of the third month is Doll Festival and is celebrated in every home having girls. This celebration takes the place of the yearly birthday parties which American children have. Dolls of all kinds are brought out, special cakes are made and guests invited.

The fifth day of the fifth month is the Boys' Festival. Instead of dolls the festive room has swords, helmets, armor and figures of warriors, while a pole with a carp—the symbol of determination—flies from the house-ridge.

It is this characteristic of the Japanese that has made them become a great power in such a short time.

MARGARET M. CORNELL, Guide-lecturer

Note: In Hall E may be seen objects from Ainu and swords of old Japan.

Save your Museum Stories. You will find them useful for looking up things you may want to know.

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STEPHEN C. SIMMS, Director

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Series XIX, Number 2

October 8, 1932

FIELD MUSEUM OF NATURAL HISTORY

Roosevelt Road and Lake Michigan

CHICAGO

LODESTONE—THE COMPASS MINERAL

According to an old legend, lodestone was first discovered by a shepherd in Crete. As he walked over the ground his sandals and his staff seemed to cling to the earth. Curious as to the cause, he dug down into the ground and found a kind of rock that pulled on the iron tacks in his sandals and the iron point of his staff. That rock was lodestone or magnetite.

Sinbad, the sailor, in the Arabian Nights story, tells of a weird island where ships can never land, as the nails are pulled from the planks when the boats approach shore, the sailors are cast into the sea and all is lost. That island was a great mass of exposed lodestone, and naturally drew all iron to it, for that is the power of lodestone.

Just what causes that power no one knows. Long before the time of Christ, people had learned of the mysterious force and many were the stories told of what it could do. Some of them were true; many more were imaginary. For instance, one fabulous tale was of a great lodestone dome that held statues of iron and brass suspended in the air. Another tale, that was current for some time, said that Mohammed was buried in an iron coffin with a lodestone at the head and another at the foot, and that the two lodestones kept the iron coffin suspended above the earth.

In time, man learned that the truth regarding the powers of lodestone had to do only with iron and lodestone. It had no power over wood, bronze or flesh. Then began an attempt to make the strange power work for man. Bits of lodestone were used in making compasses.

Histories tell us that the Chinese had a great emperor by the name of Hoan-ti, who placed a female figure, which always pointed south, on his chariot. In this way he was able to invade enemy camps in fog and dark and keep his direction. If this is true, the Chinese knew of the lodestone power long before any other people, for Hoan-ti lived about 2637 B.C.

The first compasses were quite different from those used today. There is a record of one made in the shape of a hollow iron fish which floated on the surface of the water in the Indian seas and pointed north and south.

The compass as we know it is a delicately adjusted instrument which makes the crossing of seas easy compared to what it was at the time Columbus set out from Palos. At that time, no one knew

that the needle of the compass did not point to the true North Pole of the Earth, but varied as the lines of electrical force in the Earth happened to vary. Consequently the sailors became panic-stricken when it changed and threatened to throw Columbus overboard.

If you would like to see for yourselves what magnetic force is like, suppose you take a magnet, a needle, a piece of fine thread and a very small cork. Hold the needle and rub it with the magnet, always rubbing from eye to point. Then push the needle through the cork, tie the string around the cork and let it swing freely, by holding the thread at the end away from the needle. Soon you will find that needle taking a north and south direction unless there happens to be a mass of iron near. If your cork is flat and thin, so that it will ride, thrust the needle through it and set it floating on water in a porcelain or aluminum cup. Then for some fun place it in a tin cup. What happens, and why?

Lodestone is a variety of the ore known as magnetite, and is composed of oxygen and iron. While all magnetite is attracted by the magnet, very little of it has the power that is necessary to call it lodestone. Hence very few magnets are made of lodestone. Practically all magnets used today are steel and have been treated by electricity. They hold their power for many years. Eventually some of the strength is lost.

An interesting fact in regard to a magnet, whether lodestone or steel, is that one end of it likes the north and the other likes the south. So we say a magnet has a south pole and a north pole, or a positive and a negative end. But the strangest thing happens when a magnet is swung freely. Its north pole turns to the south and its south pole turns to the north. Do you wonder that people in the old days looked upon the compass needle as something weird and that they did not dare venture far from sight of land?

MARGARET M. CORNELL, Guide-lecturer

Note: In Hall 35, on the second floor, is an extraordinary specimen of lodestone. It came from Utah, weighs more than 400 pounds, and possesses unusual magnetic power. Do not get close if you are wearing a watch. The nails and other iron objects exhibited in the same case show only too plainly what it might do to the springs of your watch.

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STEPHEN C. SIMMS, Director

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Series XIX, Number 3

October 15, 1932

FIELD MUSEUM OF NATURAL HISTORY

Roosevelt Road and Lake Michigan

CHICAGO

CHILDHOOD IN CHINA

He climbed up the candlestick,
The little mousey brown,
To steal and eat tallow,
And he couldn't get down.

He called for his grandma,
But his grandma was in town,
So he doubled up into a wheel
And rolled himself down.

To Chinese boys and girls, the above Mother Goose rhyme is as familiar as the Jack and Jill jingle is to you. Could you read their language you would find that they have "This little pig went to market" and instead of a "Man-in-the-Moon" a "Rabbit-in-the-Moon" who is busy pounding rice.

When a Chinese baby is born there is great rejoicing if it is a boy. For he will, when grown, help to care for the old people and see that the worship of his ancestors is kept up. A girl will leave home when married to make her home with her husband's people. Sometimes, Chinese girls are betrothed when still little children, but this is only in those regions in which the old customs are still in force, and schools have not yet been established for girls.

A Chinese baby is given its Milk Name when one month old. At this time, the head is shaved. Two small tufts are left over the ears and one at the back. With its little round face, its eyes like two black marbles over which the skin has been stretched and a slit made, it looks like a doll. The Chinese nickname every one, and the Milk Name is apt to express joy or beauty. For instance, a boy may be called "Have a Man" and a girl "Charming Flower." These names are always used by the family, but on entering school another more dignified name is given for the use of teachers, friends and acquaintances.

Babyhood is not an easy time for the Chinese child, as the houses are seldom warmed and the little tot, swaddled in red clothes, with a red cord around its wrist and another with tiny objects dangling from it about the neck, is carried on the back of a sister—perhaps, but two or three years older than the baby itself. The red cords and trinkets are supposed to keep away evil spirits and diseases. When older, the swaddling clothes are exchanged for garments cut on the same patterns and out of the same materials as those of the parents and grandparents. The older one is in China, the more he is respected. For a long time, ancestor worship has led the Chinese to teach their children to respect the parents and grandparents and all those who have died in the past. Each house has its ancestral shrine containing a number of wooden tablets on which the names of the ancestors are inscribed.

For the early years, the children have toys very much like your own. Clay rattles in the shapes of animals, fat little men or roly-poly children are especially loved. Dolls may be imported ones from Japan, or large rag creatures on which the nose has been sewed, ears pasted and eyes painted.

China is a land of shows. The Punch and Judy show, so dear to every child's heart, has been produced there for at least a thousand years. No other country has so many traveling shows especially for children. Then there are jugglers who stop wherever a group of children is clustered. The story-teller, too, draws his crowd, the toy vender has his stand by the sidewalk and the sweetmeat seller is not far away offering a bit of sugar cane for a copper coin.

Like children the world over, Chinese children love parades. On New Year's Day there is a great celebration when fireworks are used. During the first month of the year, also, comes the Feast of Lanterns. This is the time when huge lanterns in the shapes of shrimps, crabs, beetles, flowers and people float from poles and are carried by happy throngs. A great holiday is at the time of the Feast of the Dragon Boats. This is often called the "Children's Festival." Races between boats shaped like dragons with mouth open and manned with twenty to thirty men strive for prizes. A boy sitting on the head of the dragon directs the movements of the rowers with a flag which he holds in his hands. Proud indeed is the family whose son led the winning crew. Then there are the fairs at the Buddhist temples. These are to the Chinese children what the circus is here. Add to these the joys of Kite-flying Day when grandfather or father presents the boy with a gorgeous kite of bamboo and silk and you have the picture of a happy boy.

Up to seven years of age the boys and girls play together, work together and study together. Then childhood is over. The boy becomes serious and goes to school, and in a great many parts of China the girls do too. They now have the same opportunity for an education that the boys have.

MARGARET M. CORNELL, Guide-lecturer

Note: On the second floor is a very large exhibit of Chinese objects.

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STEPHEN C. SIMMS, Director

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Series XIX, Number 4

October 22, 1932

FIELD MUSEUM OF NATURAL HISTORY

Roosevelt Road and Lake Michigan

CHICAGO

IRON

I wonder if you can tell the name of our very commonest metal? Yes, iron. You are all well acquainted with it in the home and elsewhere, but have you any idea how long ago the people began to use iron and where they secured their supply?

Historical records inform us that as early as 6500 B.C. the Egyptians knew of it. From two ancient graves, made even before the Egyptians were civilized, have come a number of iron beads. At that time, iron was so rare that it was used for the making of beads just as we use platinum, gold, and silver now. Each iron bead was made by hammering a thin strip of wrought iron over a thin rod.

The stories of the Assyrians, Babylonians, Egyptians, and Hebrews all give it names which mean "Metal of Heaven" or "Heavenly Metal" and the early Egyptians believed the floor of heaven was the same kind of material as the objects (meteorites) which fell from the sky.

One of the great Pharaohs, Mer-ha-pen by name, was called "the Iron Pharaoh." This ruler, who lived about 4500 B.C., encouraged the use of iron among his people. Soon after, when building the Great Pyramid the workmen used iron. Several types of ancient iron tools have been found between the great blocks of stone.

Other lands, also, used it at an early date. In 4000 B.C. the Eastern Sumerians were acquainted with it, and in 3000 B.C. Tubal Cain, whose name means "smith" taught his workmen how to make both brass and iron. China was using iron for implements in 2940 B.C.

In the year 2000 B.C. the Chinese Emperor Yu received tribute from the aborigines of Tibet in the form of supplies of iron. In 1000 B.C. we find the famous Rameses II on the throne of Egypt and all the implements used in farming were made of iron.

Gradually the use of iron spread among the peoples and by 607 B.C. when the city of Nineveh was conquered for the last time, all metals were carried away by the invaders except the objects made of iron.

A famous iron meteorite near Navajo, Arizona, was known to the Navajo Indians as early as A.D. 1600. For a long time, it lay covered with rocks as they did not want the white man to find it. The name they gave it means "black iron," so they knew its value.

Many of you have seen shooting stars at night. If you watch one, it seems to disappear quickly into space. Sometimes, meteorites—parts of the shooting stars—drop onto our earth. There are two kinds of meteorites; those known as “stone meteorites” and those known as “iron meteorites.” Of all the meteorites that fall onto the earth more than half are “iron meteorites.” The iron meteorites furnished the ancients with the metal they used. It was soft, could be chiseled and with a little heat could be worked into ornaments or useful objects. The iron in meteorites is never pure metal. Usually about one-twentieth is nickel. Sometimes, there is a much greater quantity. There may be small quantities of cobalt, copper and platinum, as well as phosphorus, sulphur, silicon and large amounts of carbon. The latter make up the impurities found in earth iron.

The iron found in the ground is always combined with other things and these must be taken out before the metal can be used. As almost five per cent of the earth's crust is iron, the ground waters passing through the rocks collect the iron and later deposit it and its ores in beds, veins and other masses. It is from these formations that it is mined, and shipped to the steel mills, or smelters.

As a result of all the refining processes through which the iron passes, a product is secured which meets our every need. All the iron found in rocks, in soils, in natural mineral waters, in our blood and in the leaves of plants is the same.

This has frequently been called the Iron Age, because iron is now being used more than any other useful mineral.

MARGARET M. CORNELL, Guide-lecturer

Note: Hall 34 of the Geology Department has a large collection of iron meteorites; Hall 36 and Hall 37 show models of iron mines, blast furnaces and quantities of iron ores. Hall 9 on the ground floor has a primitive iron forge from the Philippines, and Hall D has several exhibits showing the preparation and use of iron among the African natives.

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Series XIX, Number 5
October 29, 1932

FIELD MUSEUM OF NATURAL HISTORY

Roosevelt Road and Lake Michigan

CHICAGO

PEANUTS

The popular but lowly peanut has become a North American institution. Although it is not native to this continent it has been adopted completely by old and young alike.

The peanuts originated in South America where the early Indians used them for food after boiling the peanuts in oil. They must have been important to the people because ancient Peruvian pottery has been found adorned with peanuts or made in the exact shape of them. A few peanuts have also been found in jars buried with the Peruvian mummies.

When slave ships left South America for Africa to bring back a cargo of slaves, the boats were loaded with peanuts to use as food for the slaves on the return trip. In fact, they often formed the main part of the food.

From South America ships carried the peanuts to other countries until now they are found in many parts of the world and especially in the United States.

Perhaps peanuts were first grown here when slaves were introduced. In the beginning the peanuts were not common in this country; then rather suddenly they increased in importance. Today practically all American people are familiar with the peanut vendor and his "fresh roasted peanuts," or "salted peanuts."

The peanut is not really a nut; it belongs to the family of peas and beans. However, it looks, cracks and tastes like a nut so a compromise name is used—"peanut." Other names less common are "groundnut," "ground pea," "goober," "goober pea" and "mani."

The southern states are best suited in this country to peanut raising. Just plant this peculiar fellow with his wrinkled skin and then give him three to five months without frost, a liberal amount of sunshine, high temperature, moderate rainfall, loose, sandy loam soil and he will make himself at home in his own way.

The strangest thing about the peanut is the way in which the fruits or nuts are developed. When the yellow flowers wither the flower stems with the small parts that later become peanuts point downward. Some of the stems elongate, thus sending these immature pods down into the ground. Slowly they are buried in the soil and there the pods enlarge and the peanuts are formed. Unless the minute pod becomes buried in the ground the peanuts will not form. The nuts are then

protected from animals and insects. Most of our peanuts have two seeds in one pod although sometimes there are three. An old southern superstition still exists about the unusual peanut with three seeds in it. According to the story, a person finding a three-seeded peanut must share it with some one for good luck.

During the growing season the peanut plant leads a busy life. It is actively gathering food for growth and nitrogen for the root nodules. This nitrogen greatly enriches the soil, especially if the roots of the plants are allowed to remain and decay in the ground.

When harvest time comes the peanuts must be dug something like potatoes. Usually the parts of the plants bearing the peanuts are cut and dug leaving the roots to enrich the soil. Then the vines with the peanuts are stacked in piles around posts to dry. This is the most picturesque time on a peanut plantation. It takes from four to six weeks for the peanuts to dry thoroughly. When completely dried they must be separated from the stems. Some of the peanuts will shake off the stems but others must be picked. This is a dusty and laborious task done in this country by the colored women and their children. A good worker will pick from eight to twelve bushels of peanuts a day.

The peanut crop is an important crop in the south for many reasons. Land that will not grow cotton will produce a fair crop of peanuts. The nitrogen from the roots enriches the soil, so that it will probably be suited for cotton in a few years. The vines and shells are used for cattle feed. The inferior pods are fed to the pigs. Peanut oil makes a salad oil that is hardly distinguishable from other salad oils. Peanut butter forms a large commercial product.

However, peanuts roasted or salted are more important and more in demand than all the other products made from peanuts. Foreign appetites usually have to be educated to enjoy roasted peanuts as we enjoy them; roasted peanuts are typically American.

MIRIAM WOOD, Guide-lecturer

Note: In Hall 25 you will find a peanut plant exhibit and some peanut oil. In Hall 9 there is an ancient Peruvian pottery jar decorated on the top with peanuts.

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Series XIX, Number 6
November 5, 1932

FIELD MUSEUM OF NATURAL HISTORY

Roosevelt Road and Lake Michigan

CHICAGO

FROM PLANTS TO COAL

Coal has been called by many names such as "Petrified Sunlight," "Born of the Sun" and "Bottled Sunshine." These names have been given because the sunlight of millions of years ago was absorbed by the plants which died and gradually formed our coal beds of today. That sunlight is wrapped up in the black, gloomy masses of coal brought from underground by the miners.

Millions of years ago, according to geologists, certain parts of the world were great swamps. This was long before any people lived on the earth. It was even before the great dinosaurs wallowed in the mud of our western plains. There were no mammals here like the horse, bear or rhinoceros. There were no birds or flowers in the swamps.

The swamps were strange places then with trees, animals and insects differing in most cases from those of today. In the deeper waters of the swamp some fishes were living. The animals were somewhat like our salamanders. Many were of small size with legs so weak that they could not hold up their bodies. Some of these animals must have looked and acted more like eels than anything else we know.

The insects were numerous. Dragon-flies darted through the misty swamps. Some of the dragon-flies were small, and others were very large, having a wing spread of twenty-five inches. Other insects much like grasshoppers were learning to jump about and cockroaches three inches long swarmed over the fallen trees and stumps.

This swamp could not have been a comfortable place. It was hot, very moist, misty and strangely still. Our swamps today are usually warm, moist and misty, while the stillness is impressive.

The vegetation in the coal-forming swamps was dense and grew luxuriantly. Most of the rapidly growing plant stems were hard on the outside and soft in the center. Many of the trees and plants were fern-like in appearance. Some resembled our conifers. Others were similar to our club mosses except that they were much larger, growing to 100 feet in height. The grasses today called "horsetails" or "equisetum" were present in abundance in those swamps and grew into tall trees. Some were widely branched while others had smaller whorls of leaves. None of the trees or plants had flowers. In place of flowers were cone-like objects and seeds. The cones shed their spores (fine powder-like seeds) upon the ground in almost a rain of golden spore powder.

The roots of the plants interlaced, forming a mat to anchor the plants and trees firmly in the wet swamp. As the numerous plants grew so rapidly, there was always a mass of plant material rotting in the water and projecting above it. Leaves were continually dropping, twigs were breaking and falling, tree trunks gradually sunk down under the water, and seeds, spores, cones and animal and fish remains added to the mass of material on the floor of the swamp. The water, covering parts of the swamp, prevented the fallen plants from decaying as rapidly as they would on dry land. Thus one thing piled on another and gradually sunk into the soft muddy ooze. Bubbles of marsh gas escaped from the decaying mass. Perhaps at times of heavy rainfall the swamp was entirely under water. Sand and soil were carried in at such times and settled down over the decaying materials pressing them down and forming a compact layer.

After many years of pressure, heat, loss of gases and gradual changes the leaves, trunks, plants and skeletons began to lose their appearance as such and peat, the first stage in the production of coal, was formed. After centuries more of pressure, heat and change the material was more compact, less fibrous and usually brown in color. That formed what is known as brown or lignite coal. The lignite coal, with the passage of time, gradually changed into bituminous or soft coal, and finally, after a great length of time, increased pressure from earth movements and heat, anthracite or hard coal was formed.

All these changes took place gradually through millions of years. A layer of coal represents less than one tenth of the thickness of the peat layer. Thus 100 feet of peat would make less than ten feet of coal. None of our peat bogs today are thick enough to make any great beds of coal in the future.

Though not all coal beds have been formed in exactly this same way, most of them have been formed of plant materials which grew millions of years ago.

MIRIAM WOOD, Guide-lecturer

Note: In Hall 38 is reproduced an Illinois coal-forming swamp forest of about 250,000,000 years ago. In Hall 29 you may see small models of some of the trees of that swamp. There are reproductions of the seeds, leaves and branches made from fossil impressions.

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Series XIX, Number 7

November 12, 1932

FIELD MUSEUM OF NATURAL HISTORY

Roosevelt Road and Lake Michigan

CHICAGO

THE STORY OF WHEAT

Wheat is today the commonest and one of the most important of all grains and cereals. It makes up one-fifth of the diet of the average North American family, for from it are made the finest of breads.

With these facts in mind it is not hard to believe that great amounts of wheat must be raised every year. The United States, although it produces only one-fourth of the world's crop, raises about 800,000,000 bushels of wheat per year.

The exact geographical origin of wheat is still a mystery. The Egyptians claimed that it originated with Isis, their goddess. The Chinese believed that wheat seed was sent to them as a direct gift from heaven. Probably it first grew as just a wild plant in central Asia around the Euphrates and Tigris rivers. At some very early date primitive man discovered the seeds of this wild plant and found them good to eat, and thus began the history of wheat.

Wheat has been found in the Swiss Lake region ruins; it has been found in ancient Egyptian graves; the Bible refers to it time and again; it has been raised in Mesopotamia for at least 5,000 years. Although the exact date of its origin cannot be told, wheat is thought to be the most ancient of all cultivated grains.

The Spaniards first introduced wheat into this continent when they brought it to Mexico in 1520. The following century the English brought it to New England and to Virginia. Since then many kinds of wheat have been produced to meet the needs of different soils and different climates.

At first, due to the difficulties in preparing the soils, the settlers raised just enough wheat for their own use. Then as the people advanced farther and farther westward and specialized in different trades, certain men raised more wheat than they needed. They began to supply the men who raised none. In those early days grain was sowed by hand and cut with scythes. Treading or pounding the wheat threshed it or separated the grains from the straw.

These old methods took time; it was necessary for large numbers of men to harvest the wheat. Today, machinery takes the place of many men. It is harvested rapidly. If you have ever been on a farm at harvest time you know how quickly and how thoroughly the machines do the work. It is at this harvest time that you may look out over great fields of wheat turned a beautiful golden yellow. The scene is

one that has inspired many painters and poets to wonderful works of art.

In the western part of the United States some of the fields are enormous. A single farmer sometimes has 1,000 acres of wheat. In Canada wheat is king of all agriculture. In the western part of that country, fields stretch 800 miles to the east and to the west. Grain elevators dot the landscape. One single wheat field contains 7,000 acres. Can you imagine the beauty of such a sight?

Not only is wheat raised in the United States and Canada, but it is raised in South America, Australia, New Zealand, the northern and southern tips of Africa, Europe, China, India and Egypt. Not all of these countries have modern ways of caring for their wheat as we have.

If you should go to Palestine today at harvest time, you would see the reaping done in a manner similar to that of long ago. It would remind you of the old story from the Bible of Ruth and Boaz. The men with their vivid turbans, white garments and leather aprons, work in the fields with the women who are usually dressed in blue homespun and white flowing veils. They cut the wheat with hand sickles, wrap each sheaf with a few straws and pile it up to dry. Some of the wheat usually drops and is left behind; this is gathered up by the widows and orphaned girls for their own food. The Bible story tells you that Ruth gathered the remaining wheat in the field of Boaz. Camels carry the grain from the fields to the threshing floors where the women and children drive cattle or donkeys over the piles of sheaves. After the workers and gleaners leave the fields, the shepherds bring in their flocks of sheep to graze there.

What a difference there is between the wheat fields and reaping in America and that of Palestine and of long ago. However, no matter how the wheat is raised, taken care of and harvested, it is still considered the "staff of life" for many people all over the world.

MIRIAM WOOD, Guide-lecturer

Note: In Hall 25 you may see the different kinds of wheat that have been developed from the wild grass, some wheat from an ancient Egyptian tomb and some ancient Mesopotamian wheat 5,500 years old. This is thought to be the oldest wheat in the world.

Save your Museum Stories. You will find them useful for looking up things you may want to know.

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STEPHEN C. SIMMS, Director

MUSEUM STORIES FOR CHILDREN

Presented by

*The James Nelson and Anna Louise Raymond Foundation
for Public School and Children's Lectures*



Series XIX, Number 8
November 19, 1932

FIELD MUSEUM OF NATURAL HISTORY

Roosevelt Road and Lake Michigan

CHICAGO

THE MOON

When we look at the moon in the sky it is difficult to realize that it is 237,640 miles away. Although it appears much larger than the stars, that is only because it is closer to the earth, and in reality it is many times smaller than any known star. It is really much smaller than the earth. Our earth ball is about 7,926 miles through, whereas the moon, which is also ball-like, is only 2,160 miles through.

The moon requires twenty-seven and one-third days to move around the earth, and it takes the same amount of time for it to turn around on its axis (which the earth does in twenty-four hours). Since the moon turns around at the same speed that it moves around the earth, the same side is always toward us. So no matter whether we see a full moon, a one-quarter moon, or no moon at all, the same side is always toward the earth. What the other side is like no one knows, although probably it is very much like the side that we see.

Without a telescope we can see that part of the moon's surface looks darker to us than the rest. Some people think that they see the figure of a man-in-the-moon. Chinese children sometimes call it the toad-in-the-moon, and in the early days of Christianity people thought that they saw there the figure of Judas, banished for his betrayal of Christ.

Models of the moon such as the one in Field Museum, pictures, or views through large telescopes give us another conception. The moon has mountains and plains just as the earth has. For a long time it was believed that the dark patches were seas; now, since it is accepted that the moon has no water, they are thought to be plains. The mountains, a few of which are 20,000 feet high, are much like those on the earth; some are isolated peaks, others are in ranges, and some are circular.

Of the circular mountains some are unquestionably volcanoes. Others are pits, perhaps caused by meteorites striking the moon with so much force as to bury themselves. More than 33,000 of the circular mountains have been counted; they vary in size from some a few hundred feet across to others 150 miles wide.

Were we to visit the moon it would be necessary to take along air for breathing as the moon has no air. It is too small to hold air, and if an atmosphere were ever present it has long since disappeared. Since there is no air, there can be no sound—sound is nothing but

movement of air waves. Changes of temperature must be very rapid as with no air to break the heat of the sun the temperature in the daytime must be that of boiling water. At night it probably is 100 degrees below zero, as there is no cloud or air blanket to hold the heat. The day and night on the moon are not twelve hours as with us, but each is as long as two of our weeks—a fortnight of hot daytime being followed by a fortnight of freezing darkness.

When we get on scales and weigh ourselves, our weight is merely the pull of the earth. The pull of the earth, any star, or the moon depends on its mass—the greater the mass, the greater the pull. The moon being smaller has less pull, only one-sixth that of the earth. Therefore, a person weighing 150 pounds on the earth would weigh but twenty-five pounds on the moon. In the same manner a given amount of energy should accomplish six times as much on the moon. So a high jumper capable of jumping six feet on the earth should be able to jump thirty-six feet on the moon.

Perhaps you wonder why at one time we see a full moon which gradually becomes a half moon and finally no moon at all. The moon has no light of its own, so only the side toward the sun is visible. When the moon and sun are on opposite sides of the earth we are able to see from one-half to all of the lighted side. When the two are on the same side of the earth we see less than one-half of the lighted side, and at certain times not any of it. Then we say there is no moon. There is one, of course, but since only the dark side is toward us, we are not able to see it.

FRANKLIN C. POTTER, Guide-lecturer

Note: In Hall 35 is the largest model of the moon to be found anywhere in the world. It stands 19.2 feet high.

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FIELD MUSEUM OF NATURAL HISTORY

Roosevelt Road and Lake Michigan

CHICAGO

THE WHALES

Of all sea animals, the whales are the most interesting. They are found in all seas and range in size from the porpoises of five feet in length to the great finbacks of eighty-five to one hundred feet. The finback whale is thought to be the largest animal that has ever lived upon the earth. Thrilling tales of these monsters are found in the records of the old Cape Cod whalers.

Many ancient peoples used whale oil, but they knew only the animals stranded upon the shores. As a result, queer, weird and untrue stories of the "great fish," as they called it, were circulated among the people.

The whale is not a fish. It belongs to the same group as the elephant, deer and dog, and like those animals is warm-blooded and breathes through lungs.

A long, long time ago, whales were land animals with hairy coats and four legs. Then for some reason they left the land for the seas. Gradually, the bodies changed to shapes better suited to a water life, the front legs shortened and broadened into fins, the hind legs disappeared, and a divided or fluked tail formed at the end of the body. The lungs remained.

All whales rise to the surface at stated intervals to release the old air, to clean out the lungs and to inhale fresh air. The air is taken in through nostrils which connect directly with the windpipe. These close when the whales "sound" or dive straight down.

The expelling of the old air is known as "spouting." The hot, packed breath is sent out with such force that some of the moisture condenses into fine rain when it reaches the cool air over the water. "There she blows" is an expression familiar to all whalers. The fountain or spray often rises high enough to be visible on ships a mile away. Usually the presence of a whale is first made known by this spray. Many of them also make a loud, explosive noise as the breath leaves the blow-holes. The sperm whales have a single blow-hole which is located so far forward that the spray shoots out in front rather than upward.

Cachalots or sperm whales are the most valuable of all whales. They have odd, blunt, square heads of enormous size. In the heads is a fine oil which hardens when freed from the cavities. Their regular, even teeth furnish ivory of a good quality and the blubber under the skin provides thousands of barrels of oil every year. In the bodies of some, ambergris is found. This is a greasy substance which hardens

and acquires a peculiar, sweet odor after it has been exposed to the air for a time. It is used in the making of perfumes. The sperm whale is the only whale with a throat opening large enough to admit a man. All others have very small passages.

The right whale was well known to the New England fishermen of the early days. At that time, fashion demanded that women's clothes should be stiffened with whalebone, a hair-bone substance hanging from the roofs of the mouths of certain kinds of whales. Instead of teeth, such whales have lance-shaped strips of this flexible baleen with fringes or bristles along the inner edges. When feeding, the animals open their jaws, fill the mouths with water and close them quickly. Millions of tiny plants and animals that inhabit the surface of the water are caught in the matted fringes, while the water passes out the sides. The oil from this whale often averages as much as 200 barrels per whale.

In colonial days, whaling expeditions were equipped for long, tedious voyages and only the hardiest of fishermen could battle the great mammals. The Cape Cod whalers found it necessary to develop a special kind of boat and harpoon. Such, in time, made whaling the chief industry of the inhabitants. Today, especially powerful harpoon guns are used on boats which visit distant waters. But whaling no longer has the thrills of the old days.

The blackfish, whose jaws contain the finest of machine oils, the dolphins which swim in schools and make graceful leaps in the wakes of ships, and the narwhal of the far north, all belong to the whale family. The latter animal has a twisted, prong-like tusk which projects forward from the left jaw. It is often used as a harpoon by the Eskimos. The narwhal is the animal which gave rise to the mythical unicorn.

Thus in fable, history and industry has the whale played a notable part.

MARGARET M. CORNELL, Guide-lecturer

Note: In Hall 19 may be seen skeletons of whales and the lower jaw of a sperm whale; in Hall 10, a harpoon illustrating the use of the narwhal's tusk.

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STEPHEN C. SIMMS, Director

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FIELD MUSEUM OF NATURAL HISTORY

Roosevelt Road and Lake Michigan

CHICAGO

WINTER COATS IN NORTHERN LANDS

When cold weather comes we put on our heavier clothing, then with the coming of spring we take it off again. Animals and birds do exactly the same thing; in fact some have as many as four changes each year. With the approach of cold weather their summer coats of hair or feathers begin to fall out while the winter coats gradually replace them. So with them the change is a gradual one, and if the two coats are different in color for a while the animals or birds have combinations of colors. Many animals have the same color as their surroundings so that they are more or less camouflaged. In the northern lands the winter coats of many animals are white, the color of snow.

In summer the buff-colored feathers of the ptarmigans are so much the color of the ground and vegetation as to make them almost invisible. The winter feathers are white in color—all except some on the tail. When pursued, the ptarmigans may dive into the snow through which they swim, if the snow is not too hard. At night they often use holes in the snow in which to sleep.

The snowy owl has much the same colored coat all the year around, but the color is better suited for the winter than the summer. The dusky bars or spots blend well with the white of the coat and thus make it less visible. Thus the ptarmigans or hares may not realize that any danger is about until too late when they are seized in the talons of the owl.

The caribou of North America and the reindeer of Europe are much alike in both habits and appearance. The southern caribou which live in the forests have grayish-colored coats, whereas the northern caribou of the barren grounds possess lighter colored coats, some being practically white. When the caribou is walking in snow the two side toes, "dew claws," on each foot spread out like snow shoes and aid in supporting the animal's weight.

The dusky or buffy gray summer coats of the Arctic hares are replaced by winter ones of pure white. Those in the very far north—northern Greenland and adjacent regions—where the winter is very long and the summer very short, actually retain the white coats all the year around. Between the regions where the coats always remain white and the southern range where gray summer coats are worn there is a gradual change along with the climate. The thick, heavy winter

fur not only covers the body, but also the ears, legs, and even the soles of the feet. The hair covering the toes forms broad, fluffy pads by means of which the hares can travel lightly over the snow even when it is soft. The Arctic hares live only in the barren grounds, as they do not exist where there are forests. Those of the far north have longer and sharper claws thus enabling them to better dig the snow from covered plants, and their teeth point out more from the mouth so they can the more easily pluck plants from the snow.

The White or Arctic Fox which exists even beyond the eighty-third parallel is white the year around. The summer at that latitude is so short that there is a snowy background for the greater part of the year. Since in addition to the slyness and cunning of all foxes it possesses a fur the color of snow, it is easier for it to stalk its prey.

Weasels are the only meat eating animals that change from brown summer coats to white winter ones. Being so fierce and active, the weasels do not fear attack; thus the white fur is not necessarily a protection. Neither do these animals need the color for concealment when stalking prey, since they track by smell. Only the northern ones change to a complete white in the winter. Farther south there is a less complete change, while beyond the snow limit they remain brown the year around. The times of change depend on the arrival and disappearance of the snow.

Such color adaptations seem to be developed in many creatures: insects, mammals, reptiles, birds, and others. The adaptations are not limited to the far north, but occur in any climate where there are seasonal changes, and coats the color of the surroundings develop in any environment whether there be seasonal changes or not. Perhaps the greater thickness of the winter coats in the north is more important to the animals than is the coloration.

FRANKLIN C. POTTER, Guide-lecturer

Note: A snowy owl and three varieties of European ptarmigans are exhibited in Hall 35. Hall 13 contains a Kenai caribou. The weasels are to be found in Halls 13 and 15.

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